

## **I. Introduction**

Claims 1-32 are pending in the application. In the Office Action dated Feb. 26, 2004, the Examiner rejected Claims 1-32 under 35 U.S.C. § 103(a) as obvious over U.S. Pat. No. 5,819,238 ("Fernholz") in view of U.S. Pat. No. 5,812,987 ("Luskin"). In this Amendment, Claims 1-4, 6-9, 15, 18-24, and 27-32 have been amended. Additionally, Claims 33-56 have been added. Applicants respectfully request reconsideration and withdrawal of the rejection of Claims 1-32 in view of the remarks and amendments made herein.

## **II. Independent Claim 1**

Amended Independent Claim 1 is directed to a method for determining a fair value of a fund containing a number of assets. None, or only a portion, of the assets that make up the fund may trade at any given time. Therefore, to determine the value of an asset at a time when the asset is not being traded, an analysis is performed using a set of historical data related to the asset. The analysis of the set of historical data results in a plurality of coefficients that can be multiplied by a difference between a depository receipt price, or other appropriate market factors, and a most recent closing price to produce a product representing an estimated value of the asset. This estimated value may be used by a fund to determine a net asset value as a function of the estimated value of the underlying assets.

As explained in the application, Applicants have discovered a way to estimate a fair value of an underlying asset using an analysis of historical data, such as a regression analysis. This invention allows companies such as the assignee of the present invention to provide coefficients, such as regression coefficients, to mutual fund companies to assist them in deriving a current net asset value for their mutual fund at a time when a portion of the underlying assets of a fund are not being traded. Nothing in Fernholz or Luskin suggests executing an analysis of historical data to estimate a fair value of an asset or a net asset value of a fund at a time when a portion of the underlying assets of the fund are not being traded.

Fernholz is directed to an apparatus and method for automatically modifying a financial portfolio. In particular, Fernholz discloses a method in which a financial

portfolio is dynamically re-weighted to determine the current proportions of specific assets within the portfolio. Then, in response to the calculated proportions of the specific assets, buy and sell orders are automatically placed to rebalance the portfolio. Fernholz does not disclose, or even suggest, any method for estimating a value of an underlying asset of a fund at time when a portion of the underlying assets are not being traded. In contrast, Fernholz states that the dynamic portfolio operations normally occur during market hours (Col 13, lines 49-55). Therefore, Fernholz does not even address the same problem as the current invention.

Luskin is directed to managing assets in one or more investment funds by calculating a risk of a fund as a function of the risk associated with each underlying asset, and in response to the calculated risk of the fund, adjusting the proportion of each asset in the fund to adjust the overall risk of the fund. Like Fernholz, Luskin does not disclose, or even suggest, a method for estimating a value of an underlying asset of a fund at a time when a portion of the underlying assets are not being traded.

Therefore, Luskin also does not address the same problem as the current invention.

Further, since neither Fernholz nor Luskin discloses or suggests a way for estimating a value for an underlying asset of a fund at a time when the underlying asset is not being traded, the proposed combination of Fernholz and Luskin necessarily can not render Claim 1 and its dependent claims unpatentable. Withdrawal of the rejection of Claims 1-14 under 35 U.S.C. § 103(a) is respectfully requested.

### **III. Independent Claim 15**

Independent Claim 15 is directed to a method for determining a value of a fund having a first subset of underlying assets that are traded in a liquid market at the time of determining the value of the fund, and a second subset of underlying assets that are not traded in a liquid market at the time of determining of the value of the fund. A first value is determined that includes the last traded price of each asset in the fund being traded at the time of value determination. A fair value estimate for each asset that is not being traded at the time of value determination is calculated. Finally, a net asset value of the fund is determined as a function of the first value and the fair value estimates of each of the assets of the fund not being traded at the time of value determination. As discussed

above, neither Fernholz nor Luskin disclose, or suggest, a method for estimating a value of an underlying asset of a fund at a time when a portion of the underlying assets are not being traded. Therefore, Claim 15 and its dependent claims are not obvious over the cited art. Withdrawal of the rejection of Claim 15-17 under 35 U.S.C. § 103(a) is respectfully requested.

#### **IV. Independent Claim 18**

Amended independent Claim 18 is directed to a value determinator that determines a value for an underlying asset. A regression analysis module of the value determinator determines a set of coefficients and market factors for the underlying asset that is not traded at the time the regression analysis module determines the set of coefficients and market factors. An asset valuation module then determines an asset value for the underlying asset as a function of the coefficients and market factors. Again, as discussed above, Fernholz and Luskin do not disclose, or suggest, a method for determining a value of an underlying asset at a time when an asset is not being traded. Therefore, Claim 18 and its dependent claims are not obvious over the cited art. Withdrawal of the rejection of Claims 18-20 under 35 U.S.C. § 103(a) is respectfully requested.

#### **V. Independent Claim 21**

Amended independent Claim 21 is directed to a method for determining fair values of a set of underlying assets. A set of coefficients is received for each asset in a set of underlying assets, where each of the coefficients is determined by performing an analysis of historical data. Each coefficient has a corresponding market factor whose at least one value is received. Then, a fair value for each asset in the set of assets is determined as a function of the set of coefficients and the values of the market factors. As discussed above, Fernholz and Luskin do not disclose, or suggest, using regression coefficients to estimate a fair value of an asset. Therefore, Claim 21 and its dependent claims are not obvious over the cited art. Withdrawal of the rejection of Claims 21-22 under 35 U.S.C. § 103(a) is respectfully requested.

## **VI. Independent Claim 23**

Finally, independent Claim 23 is directed to a method for determining a value of an equity after the market the equity is traded in is closed. Initially, a set of regression coefficients is generated using a regression analysis. Each regression coefficient corresponds to a market factor that comprises price differences of financial assets. After the regression is generated, a value for the equity is determined using the corresponding regression coefficients and a set of current prices for the market factors. Fernholz and Luskin do not disclose, or suggest, using a regression analysis to determine a fair value of an equity at a time when the equity is not being traded. Therefore, Claim 23 and its dependent claims are not obvious over the cited art. Withdrawal of the rejection of Claims 23-32 under 35 U.S.C. § 103(a) is respectfully requested.

## **VII. Claims 33- 56**

New Claims 33-56 have been added. No new matter has been added by the addition of these claims. Applicants submit that Claims 33-56 are in condition for allowance.

Independent Claim 41 is directed to a method of estimating a value of at least one asset at a time when a price of the at least one asset is not readily available. A regression technique using a set of historical data relating at least to a first asset whose price is not readily available is used to determine a set of regression coefficients. Each of the regression coefficients is multiplied by a market factor corresponding to that particular coefficient. An estimated value of the first asset is then determined as a function of a most recent closing price of the first asset and the product of each of the regression coefficients with its corresponding market factor. Fernholz and Luskin do not disclose, or suggest, using a regression technique to determine an estimated value of an asset at a time when the asset is not being traded. Therefore, Claim 41 and its dependent claims are not obvious over the cited art.

Independent Claim 56 is directed to a method of estimating a value of at least one asset at a time when a price of the at least one asset is not readily available. An analysis technique using a set of historical data relating at least to an asset whose price

is not readily available is used to determine a set of coefficients relating to the first asset. Each of the coefficients is multiplied by at least one market factor. Finally, an estimated value of the first asset is determined as a function a last known closing price of the first asset and the product of each of the set of coefficients and the at least one market factor. Fernholz and Luskin do not disclose, or suggest, using an analysis technique using historical data to determine an estimated value of an asset at a time when the asset is not being traded. Therefore, Claim 56 is not obvious over the cited art.

### **VIII. Conclusion**

In view of the foregoing remarks and amendments, Applicants submit that the pending claims are patentable over the cited art and that this application is in condition for allowance. Reconsideration is therefore respectfully requested. If there are any questions concerning this Response, the Examiner is asked to phone the undersigned attorney at (312) 321-4200.

Respectfully submitted,



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